



Entergy Nuclear Operations, Inc.
Vermont Yankee
320 Governor Hunt Road
Vernon, Vermont 05354
Tel: (802) 257-7711

Christopher J. Wamser
Site Vice President

BVY 14-014

February 26, 2014

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

SUBJECT: Vermont Yankee's Second Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)
Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

- REFERENCES:
1. NRC Order Number EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, dated March 12, 2012 (ML12054A736)
 2. NRC Interim Staff Guidance JLD-ISG-2012-01, Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, Revision 0, dated August 29, 2012 (ML12229A174)
 3. NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, Revision 0, dated August 2012 (ML12221A205)
 4. Letter, Entergy to NRC, Vermont Yankee Initial Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), BVY 12-071, dated October 26, 2012 (ML12306A084)
 5. Letter, Entergy to NRC, Vermont Yankee Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), BVY 13-017, dated February 28, 2013 (ML13064A300)

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6. Letter, Entergy to NRC, Vermont Yankee's First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), BVY 13-076, dated August 28, 2013 (ML13247A030)
7. Letter, Entergy to NRC, Notification Of Permanent Cessation of Power Operations, BVY 13-079, dated September 23, 2013 (ML13273A204)

Dear Sir or Madam:

On March 12, 2012, the Nuclear Regulatory Commission ("NRC" or "Commission") issued an order (Reference 1) to Entergy. Reference 1 was immediately effective and directs Entergy to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event. Specific requirements are outlined in Attachment 2 of Reference 1.

Reference 1 required submission of an initial status report 60 days following issuance of the final interim staff guidance (Reference 2) and an overall integrated plan pursuant to Section IV, Condition C. Reference 2 endorses industry guidance document NEI 12-06, Revision 0 (Reference 3) with clarifications and exceptions identified in Reference 2. Reference 4 provided the Vermont Yankee initial status report regarding mitigation strategies. Reference 5 provided the Vermont Yankee Overall Integrated Plan.

Reference 1 also requires submission of a status report at six-month intervals following submittal of the Overall Integrated Plan. Reference 3 provides direction regarding the content of the status reports. Reference 6 provided the first six-month status report.

Reference 7 notified the NRC that Entergy had decided to permanently cease power operations of Vermont Yankee Nuclear Power Station in the fourth quarter 2014. This status report reflects that decision. Entergy is evaluating its responses to Reference 1 in order to determine the appropriate actions in alignment with the decision to permanently cease power operations.

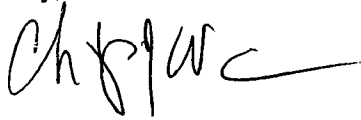
The purpose of this letter is to provide the second six-month status report pursuant to Section IV, Condition C.2, of Reference 1, that delineates progress made in implementing the requirements of Reference 1. The attached report provides an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, or need for relief and the basis, if any.

This letter contains no new regulatory commitments.

Should you have any questions regarding this submittal, please contact Mr. Coley Chappell at (802) 451-3374.

I declare under penalty of perjury that the foregoing is true and correct;
executed on February 26, 2014.

Sincerely,



[CJW/JTM]

Attachment: Vermont Yankee's Second Six-Month Status Report for the
Implementation of Order EA-12-049, Order Modifying Licenses with
Regard to Requirements for Mitigation Strategies for Beyond-Design-
Basis External Events (12 pages)

cc: Mr. William M. Dean
Regional Administrator, Region 1
U. S. Nuclear Regulatory Commission
2100 Renaissance Blvd., Suite 100
King of Prussia, PA 19406-2713

U. S. Nuclear Regulatory Commission
Attn: Director, Office of Nuclear Reactor Regulation
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2378

NRC Senior Resident Inspector
Vermont Yankee

U. S. Nuclear Regulatory Commission
ATTN: Douglas V. Pickett
OWFN - Mail Stop O8G9A
11555 Rockville Pike
Rockville, MD 20852-2378

U. S. Nuclear Regulatory Commission
ATTN: Jessica A. Kratchman
OWFN - Mail Stop 9 D2
11555 Rockville Pike
Rockville, MD 20852-2378

Mr. Christopher Recchia, Commissioner
Vermont Department of Public Service
112 State Street, Drawer 20
Montpelier, VT 05620-2601

Attachment to

BVY 14-014

**Vermont Yankee's Second Six-Month Status Report for the
Implementation of Order EA-12-049, Order Modifying Licenses with
Regard to Requirements for Mitigation Strategies for
Beyond-Design-Basis External Events**

Vermont Yankee's Second Six-Month Status Report for the Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

1. Introduction

Entergy Nuclear Operations, Inc. (Entergy) developed an Overall Integrated Plan (OIP) for Vermont Yankee Nuclear Power Station (VY) (Reference 1), documenting the diverse and flexible strategies (FLEX), in response to Reference 2. This attachment provides an update of milestone accomplishments since submittal of the OIP, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

On September 23, 2013, Entergy notified the NRC that it had decided to permanently cease power operations of VY at the end of the current operating cycle (Reference 9). Entergy is evaluating its responses to Reference 2 in order to determine the appropriate actions in alignment with the decision to permanently cease power operations at VY.

2. Milestone Accomplishments

The following milestone(s) have been completed since July 31, 2013 and are current as of January 31, 2014.

- First Six-Month Status Report — August 2013

3. Milestone Schedule Status

The following provides an update to Attachment 2 of the OIP. It provides the activity status of each item, and whether the expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed. Items that were changed are discussed below.

Order EA-12-049 (Reference 2) requires completion of full implementation no later than two (2) refueling cycles after submittal of the overall integrated plan, as required in Condition C.1.a, or December 31, 2016, whichever comes first. Since VY will permanently cease power operations at the end of the current operating cycle, estimated to be 4th quarter 2014 (Reference 9), there will be no further refueling outages, startups, or refueling cycles. As a result, the full implementation date has been updated to reflect a December 31, 2016 implementation date. Other milestone dates will be revised with submittal of a revised OIP in August 2014.

- Purchase Equipment

A new milestone target date will be provided with a revised OIP.

Vermont Yankee's Second Six Month Status Report for the Implementation of FLEX

- Validation Walk-throughs

This new milestone target date reflects the revised Order implementation date.

- Perform Staffing Analysis

The milestone target date has been revised to reflect the revised Order implementation date.

- Submit Completion Report

This new milestone target date reflects the revised Order implementation date.

Milestone Schedule

Milestone	Target Completion Date*	Activity Status	Revised Target Completion Date
Submit 60 Day Status Report	October 26, 2012	Complete	
Submit Overall Integrated Implementation Plan	February 28, 2013	Complete	
Submit 6 Month Status Report	August 28, 2013	Complete	
Develop Mods	Fall 2013	In Progress**	TBD**
Develop Strategies/Playbook with RRC	Spring 2014	In Progress**	TBD**
Purchase and Procure Equipment	Spring 2014	In Progress**	TBD**
Perform Staffing Analysis	Summer 2014	Not Started	August 2016
Issue FLEX Support Guidelines (FSGs)	Summer 2014	Not Started	TBD**
Submit 6 Month Status Report	February 2014	Complete (with this submittal)	
Create Maintenance Procedures	Summer 2014	Not Started	TBD**
Submit 6 Month Status Report including revised Overall Integrated Plan	August 28, 2014	Not Started	
Procedure Changes Training Material Complete	Summer 2014	Not Started	TBD**
Develop Training Plan	Spring 2014	Not Started	TBD**
Implementation Outage	Fall 2014	Not Started	Not Applicable

Vermont Yankee's Second Six Month Status Report for the Implementation of FLEX

Milestone	Target Completion Date*	Activity Status	Revised Target Completion Date
Implement Training	Fall 2014	Not Started	December 2016
Implement Mods	Fall 2014	Not Started	December 2016
Submit Completion Report	February 2015	Not Started	February 2017
NRC FLEX RAI's (Reference 3)	July 17, 2013	See RAI Table (Section 9)	TBD**
Validation Walk-throughs	Fall 2014	Not Started	December 2016

* - Target Completion Date is the last submitted date from either the OIP or previous six-month status report.

** - These milestones are being reassessed and revised target completion dates will be determined and included with the revised OIP.

4. Changes to Compliance Method

On September 23, 2013, Entergy notified the NRC that it has decided to permanently cease power operations at VY at the end of the current operating cycle (Reference 9). Entergy is evaluating its responses to Reference 2 in order to determine the appropriate actions in alignment with the decision to permanently cease power operations.

The FLEX strategies in the OIP rely on the current conceptual design of the reliable hardened vent (RHV) system that was developed in response to NRC Order EA-12-050 (Reference 5). NRC Order EA-13-109 (Reference 6) dated June 6, 2013, rescinds the requirements of NRC Order EA-12-050. On November 22, 2013, Entergy requested rescission of NRC Order EA-13-109 upon docketing of the 10CFR50.82(a)(1) certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel (Reference 10).

Entergy plans to submit, in the August 2014 status update, a revised OIP reflecting the decommissioning plant conditions which will exist in December 2016.

5. Need for Relief/Relaxation and Basis for the Relief/Relaxation

VY expects to comply with the revised order implementation date and no relief/relaxation is required at this time. Relief/relaxation requests associated with the revised OIP are expected to be submitted in August 2014.

6. Open Items from Overall Integrated Plan and Draft Safety Evaluation

Below are the open items from the integrated plan submitted on February 28, 2013.

Overall Integrated Plan Open Item	Status
<p>OIP Section: General Integrated Plan Elements (PWR & BWR) – Seismic Hazard Assessment</p> <p>Open Item: FLEX Storage locations have not been finalized, therefore, investigation of deployment routes for possible impacts due to liquefaction have not been performed</p>	<p>Started. The applicability of this open item will be reassessed as part of the revised OIP expected to be submitted August 2014.</p>
<p>OIP Section: General Integrated Plan Elements (PWR & BWR) – Key Site assumptions to implement NEI 12-06 strategies.</p> <p>Open Item: 1. Structure, content and details of the Regional Response Center playbook will be determined.</p>	<p>Started. The applicability of this open item will be reassessed as part of the revised OIP expected to be submitted August 2014.</p>

7. Potential Draft Safety Evaluation Impacts

The NRC has not yet issued a draft safety evaluation; therefore, there are no potential impacts to the draft safety evaluation identified at this time.

8. References

The following references support the updates to the OIP described in this attachment.

1. Vermont Yankee Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), BVY 13-017, dated February 28, 2013.
2. NRC Order Number EA-12-049, Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, dated March 12, 2012.
3. NRC Request for Additional Information Regarding Overall Integrated Plan in Response to March 12, 2012 Commission Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049) (TAC No. MF0779), dated June 17, 2013.

Vermont Yankee's Second Six Month Status Report for the Implementation of FLEX

4. Response to Request for Additional Information Regarding Overall Integrated Plan for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049) – Vermont Yankee Nuclear Power Station, BVY 13-064, July 17, 2013.
5. NRC Order Number EA-12-050, Issuance of Order to Modify Licenses with Regard to Reliable Hardened Containment Vents, dated March 12, 2012.
6. NRC Order Number EA-13-109, Issuance of Order to Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions, dated June 6, 2013.
7. NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, Revision 0, dated August 2012.
8. Vermont Yankee's First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), BVY 13-076, dated August 28, 2013 (ML13247A030)
9. Notification Of Permanent Cessation Of Power Operations, BVY 13-079, dated September 23, 2013 (ML13273A204)
10. Entergy's Request for Rescission of and Schedule Relief from Commission Order Modifying License With Regard To Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions (Order Number EA-13-109) , BVY 13-101, dated November 22, 2013

9. RAI Status

Note: The below RAIs are included for completeness. They are associated with the original OIP submitted February 2013 (Reference 1). A revised OIP which considers the planned decommissioning state is expected to be submitted August 2014.

Vermont Yankee FLEX OIP RAI Status

RAI Number	RAI Topic	Status
049-RAI-VY-1	Identify LARs needed for FLEX mods	Open
049-RAI-VY-2	Early containment venting - provide technical and regulatory basis	Open Generic Industry Concern
049-RAI-VY-3	Timeline/time constraints - provide basis to justify there being no margin in timing of actions	Complete
049-RAI-VY-4	Identify equipment needed for the SBO coping duration that is being credited for ELAP during Phase 2	Complete
049-RAI-VY-5	Provide justification for long term habitability at temperatures over 110 °F in MCR	Open
049-RAI-VY-6	Actions to protect operators in hot areas	Open
049-RAI-VY-7	Security measures needed when doors or equipment hatches are propped open for ventilation purposes	Complete
049-RAI-VY-8	Batteries and load shedding: a. Provide load profile and actions and impacts due to load shed, b. Identify components that change state when de-energized for load shed, c. Identify breakers for load shed, d. Identify whether special markings will be applied to breakers selected for load shed	Open
049-RAI-VY-9	Provide documentation of battery duration and qualification	Open Generic Industry Concern

Vermont Yankee's Second Six Month Status Report for the Implementation of FLEX

RAI Number	RAI Topic	Status
049-RAI-VY-10	Provide basis that time constraint of connecting Phase 2 DG can be met	Complete
049-RAI-VY-11	Describe how FLEX DG and EDG are isolated to prevent simultaneous operation on bus	Closed
049-RAI-VY-12	Provide minimum DC voltage for operation of elect equipment	Complete
049-RAI-VY-13	Justify how load shed can be complete at the same time ELAP is declared	Open
049-RAI-VY-14	Seismic capability of EDG fuel oil storage and day tanks	Complete
049-RAI-VY-15	Describe power requirements for HCVS valves and indication or instrumentation and how power will be supplied	Open Generic Industry Concern Related to Order EA-13-109
049-RAI-VY-16	Battery room hydrogen accumulation and venting	Complete
049-RAI-VY-17	Strategy for venting hydrogen from battery rooms	Open
049-RAI-VY-18	Provide additional information to address considerations 2 - 4 of Section 5.3.3 of NEI 12-06 regarding internal flood sources, power for mitigation of groundwater, and impact of non-seismic downstream dams	Open
049-RAI-VY-19	Long duration persistent flooding – discuss plans to move equipment and restock supplies	Open
049-RAI-VY-20	Regional Response Center (RRC) contracts/agreements – discuss items 2-10 of NEI Section 12.2	Complete

Vermont Yankee's Second Six Month Status Report for the Implementation of FLEX

RAI Number	RAI Topic	Status
049-RAI-VY-21	Discuss portable lighting and communication in plant for deployment strategies	Complete
049-RAI-VY-22	Unavailability control for equipment/connections per NEI Sect 3.2.2 & 11.5	Complete
049-RAI-VY-23	Access to and protection of N2 bottles	Complete
049-RAI-VY-24	N2 bottle capacity to meet the required SRV operations	Complete
049-RAI-VY-25	Securing of large portable equipment to protect the plant during a seismic event and evaluation of stored equipment for seismic interaction	Open
049-RAI-VY-26	The effects of AC power loss on access to protected area and internal locked areas via security doors and gates when power is lost	Open
049-RAI-VY-27	Access to FLEX valves via seismically protected buildings and paths	Open
049-RAI-VY-28	Protection of tow vehicles	Open
049-RAI-VY-29	Provide procedure / reference that describes how to take local readings of instruments	Open
049-RAI-VY-30	What debris removal equipment is available for use prior to 72 hours	Open
049-RAI-VY-31	Provide information on how snow & ice will be removed if necessary	Open
049-RAI-VY-32	Discuss impact on portable equipment of high temperatures in area where it is deployed	Complete

Vermont Yankee's Second Six Month Status Report for the Implementation of FLEX

RAI Number	RAI Topic	Status
049-RAI-VY-33	Provide analytical results to support the conclusions of MAAP which will indicate they are consistent with expected plant behavior and that core cooling is maintained	Open Generic Industry Concern
049-RAI-VY-34	Provide technical basis to support the conclusion that capability of MAAP code is sufficient to predict the adequacy of mitigating strategies to cool the core during an ELAP event	Open Generic Industry Concern
049-RAI-VY-35	MAAP - provide summary of techniques, assumptions, and boundary conditions	Open Generic Industry Concern
049-RAI-VY-36	QA process for MAAP	Complete
049-RAI-VY-37	Provide justification for assumptions made regarding primary system leakage from recirculation pump seals and other sources	Open
049-RAI-VY-38	Clarify whether the use of HPCI instead of RCIC would affect the analysis	Complete
049-RAI-VY-39	Stability of SP water level with long term injection of outside water sources	Open Generic Industry Concern Related to Order EA-13-109
049-RAI-VY-40	Will equipment protection features interfere with operation of RCIC	Complete
049-RAI-VY-41	Discuss time frame for staging and implementing Phase 2 FLEX pump operation	Complete
049-RAI-VY-42	Clarify how determination to place ADS inhibit will be used and justify how the planned 'monitoring' approach is acceptable to prevent system actuation	Complete

Vermont Yankee's Second Six Month Status Report for the Implementation of FLEX

RAI Number	RAI Topic	Status
049-RAI-VY-43	CST Standpipe mod - provide reference or analysis that concludes that raising the standpipe adds 2.5 hours of RCIC operation	Complete
049-RAI-VY-44	Add discussion to describe the need and action of depressurization when implementing injection with FLEX pump	Complete
049-RAI-VY-45	What hydraulic analyses of FLEX pump/strategy were done or are planned to confirm the required flow	Complete
049-RAI-VY-46	Discuss impact regarding water quality for injection with west deep basin on Connecticut River on fuel assemblies	Open
049-RAI-VY-47	Develop timeline for startup of RCIC during cold shutdown conditions	Open Generic Industry Concern
049-RAI-VY-48	Time to boil when in mode 5, and vessel level below the head flange	Open Generic Industry Concern
049-RAI-VY-49	Explain the inconsistency between guidance of EOPs to vent containment and the actions in the mitigating strategies for venting containment	Complete
049-RAI-VY-50	Early containment venting - confirm that maintenance of containment integrity is intended to demonstrate the ability to quickly restore containment integrity in the future while supporting decay heat removal in the meantime	Open
049-RAI-VY-51	Provide clarification as to what is limiting factor for early containment venting	Complete
049-RAI-VY-52	Submittal report contains no instrumentation for measuring D/W temperature	Complete

Vermont Yankee's Second Six Month Status Report for the Implementation of FLEX

RAI Number	RAI Topic	Status
049-RAI-VY-53	Containment integrity while at high containment temperatures	Complete
049-RAI-VY-54	Provide range of plant states that require containment venting – describe information used to make decision to vent	Complete
049-RAI-VY-55	What reliance was placed on BWR roadmap and what plant specific analysis was performed	Complete
049-RAI-VY-56	Provide site analysis commensurate with the BWR roadmap	Open
049-RAI-VY-57	Explain why two different MAAP reports are referenced in the submittal	Complete
049-RAI-VY-58	Confirm HCVS does not rely on additional consumable support (air/nitrogen, power, etc.)	Open Generic Industry Concern Related to Order EA-13-109
049-RAI-VY-59	Clarify intent of statement regarding use of portable equipment for HCVS	Open Generic Industry Concern Related to Order EA-13-109
049-RAI-VY-60	Discuss impact on time-to-boil from sloshing in the SFP	Complete
049-RAI-VY-61	Discuss venting the reactor building and impact to strategy without an adequate vent path	Open
049-RAI-VY-62	Discuss/provide analysis for use of FLEX pump for filling CST and SFP concurrently	Open
049-RAI-VY-63	Discuss/provide analysis for use of FLEX pump for spraying SFP and vessel injection concurrently	Complete
049-RAI-VY-64	Discuss timing of SFP cooling initiation during full core offload	Complete

Vermont Yankee's Second Six Month Status Report for the Implementation of FLEX

RAI Number	RAI Topic	Status
049-RAI-VY-65	Discuss fueling provisions for portable equipment, time constraints, and protection of fuel cart	Open
049-RAI-VY-66	Discuss instrumentation used to monitor portable FLEX electrical power equipment	Complete
049-RAI-VY-67	Discuss maintenance and testing of electrical FLEX equipment	Open Generic Industry Concern
049-RAI-VY-68	Severe accident condition impact to FLEX strategies	Complete
049-RAI-VY-69	Severe accident condition impact to equipment transport, and response times	Complete
049-RAI-VY-70	Discuss additional FLEX equipment/actions needed for drywell flooding in severe accident conditions	Complete